

# Legumes

Farmers have long known that livestock pastured on grass and clover gain weight faster than those fed only grass. Clover mixed with grass in pastures reduces the need for application of nitrogen, thus saving farmers time and money. Many Extension publications are written on legume production and benefits to livestock. However, there are also many benefits to wildlife from growing legumes.

*NOTE: Many University of Kentucky Cooperative Extension Service publications are referenced in this article as (AGR - #). For more details or copies of these publications contact your local Extension office.*

## Benefits of Legumes

### Build soil nutrients

The amount of nitrogen fixed and stored by legumes may range from 50 – 200 pounds per acre per year. The stored nitrogen enriches the soil and feeds all plants in the area (legumes, grasses, shrubs and trees) whose roots come in contact with that nitrogen. These plants are valuable as wildlife food and cover.

### Provide excellent forage

Soils low in nitrogen generally are less productive in the amount and diversity of plants that serve as wildlife food. Nitrogen rich soils produce lush vegetation that serves as a food source either in the form of the plants' leaves and stems or the seed and fruit produced.

Legumes, being self-fed by their nitrogen-fixing ability, are high in protein. All growing animals require high levels of protein in their diet to build body tissue. Young, growing animals and females during egg laying or milk production periods desperately need high levels of protein. For example, researchers have determined that nursing white-tailed deer require a diet that contains 14-16% crude protein, growing bucks need 12-14% and quail chicks require foods averaging 28% crude protein during the first three weeks of life.

### Attract insects

While legumes are capable of providing high levels of protein, none are able to provide the level needed by hatchling grouse,



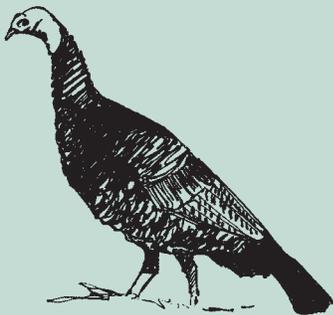
### **What are legumes?**

Legumes are a group of plants including alfalfa, clovers, lespedezas, beans and peas that are able to convert or "fix" atmospheric nitrogen into a form usable by plants and animals. Once "fixed", the nitrogen found in legumes becomes an essential building block for various proteins which plants and animals require. Legumes are able to fix and store nitrogen in small nodules on the roots because of bacteria called Rhizobium. These bacteria located in the roots of the plant do not harm the plant and must be present in the soil for legumes to convert nitrogen.



Figure 1. Birdsfoot trefoil is an important native cool season legume.

Turkey hens prefer to nest within 100 yards of good cover and fields containing high insect populations to which they can take their broods immediately after hatching. Survival of young grouse, turkey, quail and some songbird chicks is critically linked to finding a safe place to feed on an abundance of insects. Cool season legumes such as clover and alfalfa patches located near good nesting cover serve this purpose.



Finding food is a constant need for wildlife and one that exposes them to the dangers of adverse weather and predators. The faster wildlife can feed and be filled, the sooner they may return to more secure areas such as cover thickets\*, thus increasing the individual's likelihood of survival.



quail and turkeys. Their need for very high protein foods is met by eating insects. Bodies of many insects are 40 to 50 percent protein, some even more. Birds and many mammals eat great numbers of insects, especially in late spring and early summer months. Without an abundance of this nitrogen rich source of food, young wildlife may die. The connection between legumes and insect populations is simple. Animals, such as insects, get the protein they need from eating plants that are high in nitrogen. Legumes are among the most nitrogen-rich plants insects can eat. Insects are attracted to a diversity of forbs (broadleaf, herbaceous plants) that are common in Kentucky soils enriched with the nitrogen provided by legumes. As a general rule, insect populations are higher in areas with legumes and other forbs compared to pure grass stands.

#### Provide good cover

Another benefit of legumes is the type of cover they provide. The growth form of most legumes is beneficial to small, ground feeding wildlife because legumes do not form a thick mat of ground level vegetation like some grasses that become an obstacle to the animals as they travel or attempt to locate seeds and insects. Legumes such as clover are like miniature forests, having stems with few leaves near the ground and most leaves at the top forming a closed canopy. This condition is generally open enough at ground level to allow quail chicks and turkey poults to easily walk through while feeding on insects. Turkey hens move broods into areas that provide suitable feeding cover but not so dense that they become lost from the hens. If the legumes are nearly a foot tall, the young birds may feed in them and be almost invisible to avian predators such as hawks. Legume fields with little or no grass also make it easier for very young birds and mammals to travel through without becoming wet from dew or rain. Cool, wet springs are often very detrimental to the success of ground nesting and feeding wildlife because the young animals are sometimes not able to locate the food they need without exposing themselves to the hazard of getting wet and cold. The availability of pure stands of legumes provides young wildlife with the benefits of excellent forage and insect numbers in a place open enough to allow ease of movement without constant contact with dense, wet vegetation.

### **Types of Legumes**

Legumes may be classified many different ways. One way is to separate the legumes as either annuals (must be seeded each year) or perennials (productive for several years without the need for replanting). While many different types of legumes are useful to wildlife, just a few of the most commonly used ones are mentioned below.

#### Annual Legumes

**Annual lespedezas (Korean and Kobe):** Both Korean and Kobe lespedeza do most of their growing during the warm summer months. They are fairly tolerant to drought and low soil pH and fertility. Lespedezas were introduced into the U.S. in the early 1900's and by the 1940's were planted on large acreages. However, lespedeza use dropped sharply when more productive legume species and fertilizers became widely available. Korean lespedeza is less competitive with companion grasses than Kobe. Both do very well in river bottoms that overflow in the winter. Both also are killed by frost and provide little winter cover. Kobe is later seeding and early frost threatens seed production. The seed of both is highly prized as a food for bobwhite quail.

**Partridge Pea:** A native, annual warm season legume that is tolerant to many soil conditions. Provides excellent seed within pea pods. Responds well to disking every third year to ensure proper reseeding.

**Soybeans:** A common warm season agricultural crop favored by wildlife for forage and seed. Some varieties are for forage production and continue stem and leaf production after being grazed. Other types are for seed production and may not produce seed if browsed by wildlife. Soybeans are excellent wildlife food in summer and fall.

However, they lose their leaves at frost and the pods open, dropping seeds on the ground. Seeds do not persist long on the ground making soybeans a poor choice as a winter wildlife food source. Generally, soybeans favor well-drained, fertile soils with pH levels from 5.8 to 7.0.

**Cowpeas:** A warm season annual vine that produces peas favored by quail and stems and leaves favored by deer, rabbits and livestock. Cowpeas are beneficial for their soil improvement ability and are often planted with corn or milo as support for vines. They tolerate a wide range of soil pH conditions from 5.5 to 7.0.

#### Perennial Legumes

**Alfalfa:** Many new varieties are now available including grazing tolerant types. Alfalfa produces one of the highest crude protein levels and greatest yields of any legume. It is generally considered the most difficult to establish, but once established is a very tough and persistent legume. Success of the stand will depend upon a well-drained soil, attention to detail during establishment and proper maintenance. Alfalfa requires high levels of phosphorus and potassium and soil pH in the 6.6 to 7.2 range. Its deep roots make it a very drought resistant, cool season legume.

**Birdsfoot Trefoil:** A native cool season legume that is often slow to get established. It has very high palatability and is fairly drought resistant. It requires medium soil fertility and pH of 6.0 to 6.8.

**Ladino white clover:** This type of large, white clover grows 12 to 15 inches in ideal conditions during cool season periods and has been very popular among cattle producers for years. It has also become a main planting for deer herd managers in the southern United States. All insect eating wildlife benefit from field plantings of Ladino clover in pure stands or mixed with grasses. Ladino is poorly adapted to drought conditions though it is somewhat tolerant of poorly drained soils and some shading. It requires fertile soils with a pH of 6.0 to 6.5.

**Regal clover:** Another type of white clover that is very similar to Ladino but produces especially well in late summer.

**White Dutch clover:** The smallest of white clovers in height of plant and size of flowers. This common clover is often found in lawns and is poorly tolerant to drought. It is extremely low yielding compared to Ladino or Regal white clovers but may be more successfully established in shaded conditions. White Dutch is well adapted to poorly drained, medium fertility soils having pH values of 6.0 to 6.5.

**Red clover:** Excellent for livestock pasture renovation. It does fairly well in droughty soils and is somewhat adapted to poorly drained soils. Red clovers generally require medium fertility and pH of 6.2 to 6.8.

**Alsike clover:** Similar to red clover, but the blossom is pale-pink to white rather than purplish-red. Alsike grows on ground too wet or too acidic for red clover. It does fair in drought conditions, requires medium fertility and a pH of 6.0 to 6.5.

### **Planting Sites for Legumes**

Understanding the basic requirements of legumes will help determine where planting will be most successful. The following is a list of 6 factors to consider before picking a location for your legume planting.

#### Soil pH and Fertility

In general, legumes require moderately fertile soils with pH levels between 6.0 and 7.0. Alfalfa is especially sensitive to soil acidity and needs a pH level near 6.7. Alfalfa also requires high levels of phosphate (above 60) and potassium (above 250) in the soil. At the other extreme, Korean Lespedeza has excellent tolerance to acidic soils and low levels of phosphate (less than 30) and potassium (less than 165). Generally, the soil pH and fertility requirements for various types of red and white clovers fall somewhere between those of alfalfa and Korean Lespedeza. Soils that have been recently used for planting crops such as tobacco, corn or soybeans are likely to have pH and fertility levels near those needed for legumes. These may be good locations for successful production of legumes.



Figure 2. Red clover

Most agricultural plants do best with soil pH levels near or slightly below 7. Kentucky soils are generally acidic (between 5.5 and 6.5) and lime is commonly used to correct that condition. Soil test values indicating moderate levels of phosphate are 30 - 60 and potassium are 165 - 250. Though a few legumes may survive below those moderate levels, most are productive only at higher levels of soil phosphate and potassium. Only by soil testing can you know the pH and fertility condition of the soil and be able to make the necessary corrections by adding soil amendments\*.

### Soil Moisture

Moisture requirements of the various legumes differ greatly. Though all do well in moist, well-drained soils, because of its deep roots alfalfa will do well during periods of drought. White and red clovers are relatively shallow rooted and are only rated as fair in droughty soil conditions. In wet areas, Alsike clover is rated most tolerant. The difference in soil moisture conditions from ridge tops to creek bottoms and north facing to south facing slopes can be dramatic. If the choice of places to plant legumes is limited, select a type of legume best suited for that location.

### Sunlight

Few legumes do well in shade. Those that are somewhat tolerant of low sunlight conditions include Ladino and White Dutch clover. Try these species on narrow woodland trails or any other area where tree cover prevents sunlight for much of the day. Woodland edge feathering\* or "daylighting" may allow needed sunlight to reach trails and openings.

### Competing Vegetation

Legumes do not compete well with other plants. Planting locations should be free of dense stands of grass and woody plants such as trees, shrubs, vines and briars. In some cases it may be wise to delay planting for a season until competing vegetation is controlled. Any pre-existing vegetation may rob legume seedlings of necessary nutrients, moisture and sunlight. To eliminate the site of unwanted vegetation, it may be necessary to apply herbicide or plow and disk the soil. Such activity, plus the eventual need to be able to mow the area, requires the land to be level or only moderately sloped.

### Cropland Chemical Residues

It is important to note that alfalfa and other legumes are sensitive to low concentrations of herbicides such as those containing atrazine (e.g., Aatrex®) and simazine (e.g., Princep®) (AGR – 140 and 148). Also, if sowing legumes in areas where native warm season grasses\* have been recently established, be sure to determine if the herbicide called Plateau was used. If the area you want to plant legumes has a cropping history that includes the use of any herbicide, be sure to contact your local Extension office for information on the effects of previous herbicide use.

### Protective Cover

A final consideration for where legumes should be planted is positioning the legumes close to cover. Since many wildlife species are attracted to legumes as a source of food, the landowner should attempt to provide as safe a feeding opportunity as possible. Position legume plots in strips next to tall grass, shrubs or woodlands so animals may flee into that protective cover when pursued by predators. Clover or

alfalfa hay fields located in the middle of open pastureland are especially attractive, but dangerous, to small wildlife who, when feeding, become exposed to predators. Provide cover thickets\* in large fields as places for wildlife to escape predators.

### Establishment of Legumes

Establishment of legumes may be broken into two phases: **Pre-planting** and **Planting**.

### Pre-planting

After deciding where to plant and picking the best type of legume to plant to meet your objectives and existing conditions, there are three other things that need to be done before planting.

**Soil pH and Fertility Improvements:** There is a very important correlation between soil pH and fertility. Soil pH levels influence the availability of nutrients to plants. For example, the availability of phosphorus is reduced in low pH soils because it binds with iron and aluminum at pH levels less than 5.5. Soil pH may also be too high or too basic. If the pH is too high, phosphorus reacts with calcium reducing the amount available to the plants (AGR – 19). As a result,



### **Legumes Best Suited for Certain Conditions**

Shaded Area	White Dutch Clover, Ladino Clover
Acid Soil	Korean or Kobe Lespedeza
Wet Soil	Alsike Clover
Dry Soil	Alfalfa, Birdsfoot Trefoil
Low Soil Fertility	Korean Lespedeza

plants in soils having adequate levels of phosphorus and potassium may not be able to utilize those nutrients if the pH level is too high or too low.

Phosphorus is critical for establishment of legumes. Inadequate levels of this element will result in poor legume production. Potassium is also necessary and levels must be monitored since high yields of legumes remove large amounts of this element from the soil.

The only way to know the pH and fertility of the soil is to have it tested. Test results will tell you exactly how much lime and fertilizer is needed. If results show a need for improvements, you must decide if you have the ability to make those improvements. Can you get to the field with the necessary lime and fertilizer? Can you afford to purchase those items? If the answer to either one of those questions is "no", then you may select a legume with less strict requirements of pH and fertility or wait until you do have the ability to make the necessary improvements.

If lime is needed, it is best to apply it at least 6 months ahead of legume seeding so it has time to react with the soil. Otherwise, apply lime as soon before seeding as possible (AGR – 116). The rate of lime recommended in soil tests is for the use of ag-lime or quarry lime. If you have little or no advance time to apply lime before sowing legumes, you may apply half of the recommended lime rate as finely ground or "quick lime" to the field at planting time. This type of lime will not persist long in the soil but reacts quickly. It is available at most farm supply stores and is often sold in 50 pound bags. If quick lime is used, be sure to also spread the more coarse ag-lime at planting time or as soon afterward as possible at the full rate recommended by the soil test results.

The addition of phosphorus and potassium based on the recommendation from the soil test may be made at any time prior to planting since those chemicals are relatively stable in the soil but react quickly. **Do not** apply nitrogen to legume plantings! This is very important since nitrogen will feed unwanted plants that will compete against the legumes.

**Weed Control:** Mowing, plowing and disking a field is a great start to weed control, but tilling the soil at the wrong time may cause avoidable weed problems. The general belief is that tillage stirs buried weed seeds up to the surface allowing them to germinate. The decision to plant legumes in the spring or in the fall may depend on the types of weeds present. If you have an abundance of summer growing weeds (crabgrass, ragweed, foxtail, or lambsquarters) where you intend to plant legumes, you should attempt sowing in the fall. Spring plantings are usually more successful where winter weeds (chickweed, henbit, and yellow rocket) are a problem.

Some attention must also be paid to the effect other plants have on the desired legumes. One common grass called quackgrass has been found to be allelopathic, meaning it releases chemicals that may seriously reduce growth or the nitrogen-fixing ability of alfalfa and other legumes. On the positive side, winter wheat or rye plantings are often used as companion crops with legumes because they release chemicals that suppress the development of weeds but do not harm legumes.

Though timing and planting technique will help reduce the impact of different types of weeds, additional success will result from herbicide treatments before or even after your plantings have been made. Some herbicides that may be used to kill weeds before planting legumes include Balan® and Roundup®. In established legume stands, Poast® or Pursuit® may be used. Always follow label recommendations when using any herbicide. For details about the use of these and other herbicides refer to AGR – 148.

**Seedbed Preparation:** The purpose of a seedbed is to eliminate as much existing vegetation as possible and provide a place for good seed to soil contact. Depending on the type of equipment available



**Example:** If you want to sow a ¼ acre field to clover next week, but the soil test results indicate you need 2 tons of ag-lime per acre (1000 lbs. per ¼ acre), apply one half of that rate (500 lbs.) as quick lime and 1000 lbs. as ag-lime to get the necessary immediate results. The alternative is to apply the 1000 lbs. of ag-lime and wait 6 months for the lime react with the soil before planting the seed.



Figure 3. White Dutch clover.

**Allelopathy** is an effect plants have on other plants through the release of chemicals that eliminate or reduce competition from other plants for nutrients, moisture and sunlight. Alfalfa is the most studied species in regards to allelopathy. Alfalfa releases chemicals in the soil that are toxic to its own seedlings. Older stands of alfalfa tend to inhibit new alfalfa seedlings which prevents the replanting of alfalfa into an existing stand. However, one year without alfalfa is sufficient to nullify its detrimental effects. Annual rye releases a chemical through its roots that prevents certain seeds from germinating. Weeds that may be affected include: green foxtail, pigweed, ragweed, lambsquarters, common purslane and eastern black nightshade.



and conditions of the soil, this may be accomplished by repeated disking or it may require plowing and then disking.

Clover and alfalfa seeds are very small and only need to be planted to a depth of 1/8 inch. The seedbed should be very smooth for broadcasting these seeds. When planting larger seed, such as cowpeas and soybeans, it is less critical to prepare a finely disked seedbed since these larger seeds are more vigorous and are able to survive a rougher textured seedbed.

It is possible to disk a seedbed too much. Over-disking creates a seedbed that is too loose to hold the moisture necessary for seed germination. Allowing the freshly disked soil to settle for a couple of weeks before sowing seed or compacting the soil with a cultipacker before planting will improve this condition.

If at all possible, do not disk seedbeds while the soil is wet. This will result in clumpy soil and require another disking once the soil has dried in order to get a smooth result.

### Planting

Be sure to purchase quality, weed-free seed. It is important also to make sure the legume seeds are inoculated (AGR – 90). Many of the bacteria necessary for legumes to fix nitrogen may be present in the soil. However, not all are equally effective in fixing nitrogen. To ensure the right bacteria is present for the type of legume you plant, purchase the correct bacteria inoculant at the time you buy your seed. Legume inoculant is inexpensive and may be critical to the success of your planting. Bags of inoculant are dated. Do not use after expiration date.

### Types of Plantings

**Pure Stands of Legumes:** One type of legume or a mix of several types of legumes in a plot with no grasses can provide the type of cover that allows ease of movement for feeding preferred by many small wildlife species.

**Legume/Grass Mixtures:** These provide more year-round forage for wildlife and livestock than pure stands of legumes and make good nesting cover.

**Companion Crop:** Mixing legumes with annual wheat or rye can provide weed control benefits and quick fall and winter forage while legumes mature. These annuals also provide excellent seed as food for wildlife in early summer.

### Planting Techniques

**Broadcasting:** All legumes may be broadcast sown. Because broadcasting is an effective method that requires little or no special equipment, it is the planting technique most commonly used for most legumes. For small legume plots, a hand-operated broadcast seeder is very practical. Electric broadcast seeders can be mounted to ATV's, tractors and pickup trucks.

Broadcasted seed needs to be put in firm contact with the soil. Immediately after sowing seed, cultipack or lightly disk the seedbed. Remember, the very fine clover and alfalfa seeds can be covered too deeply. If using a disk, do so very lightly. A six-foot section of chainlink fence or an old bed spring may be used successfully to cover legume plantings.

Legumes may be broadcast into existing stands of grass for pasture or hayland\* renovation (AGR 26) or into annual grains\* such as winter wheat or rye. No disking is required if broadcasting legume seed into a sparsely sown stand of wheat or rye. However, if sowing into grass, be sure to reduce the amount of grass covering the ground by grazing or mowing the site prior to planting. It is recommended that 40 to 60% of the grass sod be disturbed by disking prior to broadcasting clover. More soil disturbance is required when sowing alfalfa. Broadcasting onto snow during February or March can be an effective seeding method; it allows the seed to be worked into the soil by melting action and will germinate when soil temperatures are suitable. Avoid broadcasting seed on windy days since this makes it difficult to distribute seed evenly.

**Seed Drill or Corn Planter:** These implements, pulled behind

tractors, are used to plant larger legumes, such as cowpeas and soybeans, into a prepared seedbed. These planters place and cover seeds in regularly spaced rows in one pass.

**No-Till Drill:** This tractor-drawn implement requires no seedbed preparation. To eliminate or reduce existing vegetation, herbicides are normally applied prior to planting. With the application of herbicides and by not plowing or disking when using a no-till planter, often less sprouting of weeds occurs compared to the other techniques.

## Maintenance of Legumes

### Lime and Fertilizer

Some types of legumes remove significant amounts of phosphorus and potassium from the soil. Established legume or legume and grass fields should be soil tested at least every three years to determine pH and fertility levels.

### Mowing

It is important that legumes not be overgrown by grass and weeds. In pasture situations, livestock grazing often keeps grass and some weeds clipped. Deer and other animals may keep small legume fields or patches eaten down. In either case, mowing should be done if weeds or grasses threaten to outgrow legumes. *Note: Cutting clover during hot, dry weather weakens the plants and may result in a thinner stand the following year.*

### Herbicides

While control of weeds is important in production pastures and haylands and proper use of herbicides is a valuable management tool, it may not be necessary to spray weeds in wildlife legume plots. *Note: Landowners should learn to recognize and control thistles and other noxious weeds. Contact your Extension office for more information.*

## Possible Uses of Legumes on Your Property

### **Cropland**

**rotation:** Rest corn and tobacco fields by planting to legumes.

### **Cool Season\***

**Pasture and Hayland Improvement:** All cool season pastures and hay fields with fescue grass should be converted\* to timothy and/or orchard grass and legumes. For maximum benefits to livestock and wildlife, all fields should be renovated as needed (AGR – 26).

### **Native Warm**

**Season Grass Plantings:** Whether used as pastures, haylands or wildlife cover, warm season grass\* fields should include some legumes. Legumes may be sown

with the native grass seed or sown afterward into established grass stands. A native legume such as partridge pea is a good choice.

**Firelanes:** Legume plantings make excellent firelanes. Surrounding a warm season grass field with a clover strip 30 feet wide

## Recipe for a Small Legume Patch

Locate a ¼ acre open area that is in grass or weeds and briars, but not in tree saplings. Take a soil sample to your Extension office for testing, indicating what type of legume you plan to sow. If the area is in tall grass or briars, mow it once or twice to get all vegetation to ground level. Apply lime at rate determined by soil test results. Plow and disk the plot during spring or summer. Disk again in August or September, apply the recommended amount of phosphorus and potassium and sow 15 pounds (a rate of 1 bushel per acre) of winter wheat. Lightly disk or cultipack immediately after seeding wheat. In February or March, on a light snow or prior to a rain shower, broadcast 1 pound of Ladino clover seed that has been mixed with the appropriate inoculant. The melting snow or rain will carry the seed into the soil.

### Planting Dates and Seeding Rates

<u>TYPE</u>	<u>PLANTING DATES</u>	<u>SEEDING RATES (lbs/acre)</u>
Annual Lespedeza (Korean or Kobe)	Feb. 15 – Apr 15	15 – 25 (Korean) 15 – 25 (Kobe)
Partridge Pea	Feb 15 – Apr 15	10 – 15
Soybeans	May 15 – Jul 15	25 - 50
Cowpeas	May 15 – Jul 1	60
Alfalfa	Mar 1 – Apr 15 Aug 1 – Sept. 15	12 – 20
Birdsfoot Trefoil	Aug 1 – Sept. 15	6 - 12
White clover (Ladino, White Dutch, Regal)	Feb 1 – Apr 15 Aug 1 – Sept. 10	2 – 4
Red clover	Feb 1 – Apr 15 Aug 1 – Sept. 10	8 – 12
Alsike clover	Feb 1 – Apr 15 Aug 1 – Sept. 10	4 – 6

\*When planting these with grasses reduce seeding rate by 50% of the average rate.

\*\*Cool season grasses such as orchard grass and timothy are sometimes more successful if planted in the fall. Many legumes do well if planted in the spring. When planting grass/legume mixes it is possible to sow the grasses in the fall and no-till drill or broadcast the legume in the same field the following spring.

## SUMMARY OF OPTIONS:

- Types of Legumes
  - Annual
  - Perennial
- Planting Sites for Legumes
  - Soil pH and Fertility
  - Soil Moisture
  - Sunlight
  - Competing Vegetation
  - Cropland Chemical Residue
  - Protective Cover
- Establishment
  - Pre-planting
    - Soil pH & Fertility Improvements
    - Weed Control
    - Seedbed Preparation
  - Planting
    - Types of plantings
      - Pure Stands of Legumes
      - Legume/Grass Mixtures
      - Companion Crop
    - Planting techniques
      - Broadcasting
      - Seed Drill or Corn Planter
      - No-Till Drill
  - Maintenance
    - Lime and Fertilizer
    - Mowing
    - Herbicides

provides all the benefits of legumes. Similarly, planting woodland trails with clover creates effective firelanes.

**Food Plots and Woodland Openings:** 1/8 acre (20 yds X 30 yds) up to ¼ acre (25 yds X 50 yds) patches of one type of legume such as Ladino clover or a legume/orchardgrass mix should be scattered throughout the property and close to good cover.

**Woodland Trails:** Sow narrow trails to Ladino, White Dutch clover, and orchardgrass. Winter wheat or rye sown as a nurse crop helps stabilize the soil until the grass and clover become established.

**Powerline Rights-of-Way:** In wooded areas, rights-of-way planted to legumes provide excellent forage next to good cover.

**Honeybees:** Honeybees greatly benefit from most legume plantings.

Legumes are very valuable to many types of wildlife and all landowners should seriously consider planting them for wildlife. A small portion of a property put into legume plantings can make a great difference. As little as ½ to 1 percent of a property put into high quality wildlife plantings, such as legumes, can increase reproduction, growth and antler development in white-tailed deer. Legume plantings should be a basic ingredient of every deer, turkey, grouse, rabbit, and quail management plan as well as those with bluebirds, meadowlarks, and American kestrels in mind.

### \*Related *Habitat How-To* references:

- Cover Thickets
- Soil Amendments
- Native Warm Season Grasses
- Cool Season Grasses
- Annual Grains
- Fescue Eradication
- Prescribed Burning
- Haying and Grazing
- Edge Feathering
- Forest Openings
- Mowing
- Food Plots



The Kentucky Department of Fish and Wildlife Resources does not discriminate on the basis of race, color, national origin, sex, religion, age or disability in employment or the provision of services and provides, upon request, reasonable accommodation including auxiliary aids and services necessary to afford individuals with disabilities an equal opportunity to participate in all programs and activities.

If you feel you have been discriminated against by this department, contact the Kentucky Department of Fish and Wildlife Resources Commissioner's Office, #1 Game Farm Road, Frankfort, KY 40601.

A portion of this publication was underwritten by the Forest Stewardship Program in cooperation with the Kentucky Division of Forestry.

### *Planning for My Property*